

We claim:

1. A process for preparing xylylenediamine, comprising the steps of  
5 ammoxidizing xylene to phthalonitrile, by contacting the vaporous product of the ammoxidation stage directly with a liquid organic solvent (quench), and hydrogenating the phthalonitrile in the resulting quench solution or suspension, wherein the organic solvent is N-methyl-2-pyrrolidone (NMP).
2. A process as claimed in claim 1 for preparing meta-xylylenediamine, comprising  
10 the steps of ammoxidizing meta-xylene to isophthalonitrile and hydrogenating the isophthalonitrile.
3. A process as claimed in either of claims 1 and 2, wherein, before the  
15 hydrogenation of the phthalonitrile, water and any products having a boiling point lower than phthalonitrile (low boilers) are partly or fully removed by distillation from the resulting quench solution or suspension.
4. A process as claimed in any of the preceding claims, wherein, before the  
20 hydrogenation of the phthalonitrile, there is no removal of products having a boiling point higher than phthalonitrile (high boilers) from the resulting quench solution or suspension.
5. A process as claimed in any of the preceding claims, wherein the ammoxidation  
25 is carried out at temperatures of from 300 to 500°C over a catalyst containing V, Sb and/or Cr, as an unsupported catalyst or on an inert support.
6. A process as claimed in any of the preceding claims, wherein the temperature of  
the quench effluent in the quench with NMP is from 40 to 180°C.
- 30 7. A process as claimed in any of the preceding claims, wherein the hydrogenation is carried out in the presence of ammonia.
8. A process as claimed in any of the preceding claims, wherein the hydrogenation  
is carried out at temperatures of from 40 to 150°C over a catalyst containing Ni,  
35 Co and/or Fe, as an unsupported catalyst or on an inert support.
9. A process as claimed in any of the preceding claims, wherein, after the  
hydrogenation, the xylylenediamine is purified by distilling off NMP, any  
ammonia, and also any relatively low-boiling by-products, via the top and  
40 distillatively removing relatively high-boiling impurities via the bottom.
10. A process as claimed in any of the preceding claims, wherein, after the

hydrogenation, the NMP, any ammonia, and also any relatively low-boiling by-products, are distilled off via the top and, afterwards, any relatively high-boiling impurities are removed from the xylylenediamine by distillation via the bottom.

- 5 11. A process as claimed in either of the two preceding claims, wherein the xylylenediamine, after the distillation, is extracted for further purification with an organic solvent.
- 10 12. A process as claimed in the preceding claim, wherein cyclohexane or methylcyclohexane are used for the extraction.